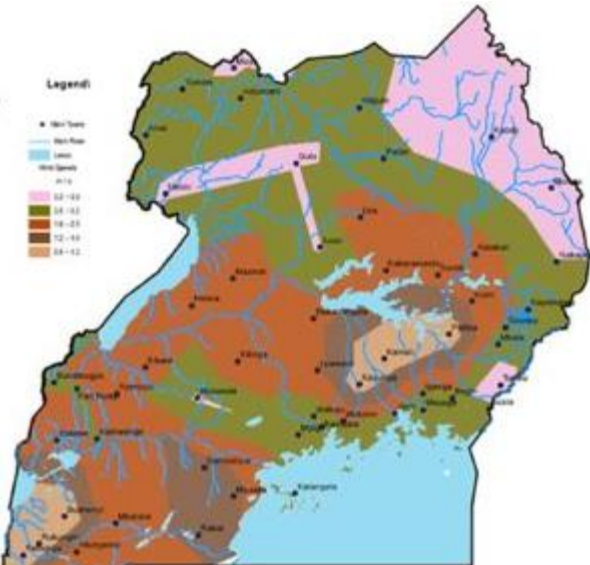


Communique of the Aflasafe Commercialization Strategy stakeholder validation and investment forum



19th October 2023, Kampala, Uganda

Introduction

The International Institute of Tropical Agriculture (IITA) in partnership with the Government of Uganda through the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) and with the support from aBi Development Ltd, organized the Aflasafe commercialization strategy and an investment forum with support from the Eastern Africa Grain Council (EAGC) on 19th October 2023 at Hotel Africana in Kampala, Uganda.

Officially opened by Mr. Alex Bambona, Assistant Commissioner at Ministry of Agriculture, Animal Industry, and Fisheries (MAAIF), the forum was attended by 45 key stakeholders (See Annex 1) from Uganda's public and private sector who provided feedback and inputs into the draft Aflasafe Commercialization Strategy. As a result, a robust Aflasafe commercialization strategy, which aims at offering an on-farm solution for the challenge of aflatoxin in Uganda by introducing Aflasafe as a safe, effective, and commercially viable product was validated. The forum also highlighted the Aflasafe investment opportunity and kicked off the onboarding process for Aflasafe investors in Uganda.

Preamble

The workshop recognized that:

1. Aflatoxins are a major food safety concern. They are produced by the *Aspergillus flavus* fungi that exists naturally in soils. Solutions that exist to control aflatoxins, however, are mostly concentrated after harvest.
2. Given the bimodal rainfall and the fact that often harvesting takes place when rains are ongoing, the challenge of adequately drying grain to ensure fungi and molds do not accumulate and produce toxins on the grains exposes Uganda's grain to a higher likelihood of being contaminated by aflatoxins, as has been witnessed and reported on many occasions. This often leads to rejection of grains by the buyers in the neighboring countries, thus causing economic losses and posing danger to public health.
3. A 2019 study by the Department of Food Technology and Nutrition from [Makerere University](#), revealed that 47% of maize grain, 25% of the groundnuts, and 92% of sorghum sampled in Kampala had aflatoxin levels above the recommended 10ppb contamination threshold stipulated in the East African Grain Standards..
4. The business impact of Aflatoxins on Uganda's economy was presented; for instance, in 2018, when Kenya rejected a deal involving export of 600,000 metric tons of maize from Uganda equivalent to US\$ 126 million owing to poor quality and especially aflatoxin contamination¹. Exporters interviewed during the development of the Aflasafe Commercialization Strategy reported periodic inability to actualize export opportunities in Kenya due to high aflatoxin levels in maize, sorghum, and groundnuts.
5. Thankfully, following six years of research by IITA scientists in collaboration with researchers from [National Agricultural Research Organization \(NARO\)](#) lead by the [National Crops Resources Research Institute \(NaCRRI\)](#), the Aflasafe product for Uganda, code named AflasafeUG01 & AflasafeKE01 was developed, and proven effective in controlling the spread of the *Aspergillus flavus* fungi in soils.
6. Aflasafe is made up of a combination of four locally isolated atoxigenic strains, roasted sorghum, polymer, and blue dye. It is unique because it is a pre-harvest, biological control solution for aflatoxin in staple crops which effectively reduces aflatoxin contamination by between 80 and 95% when applied in the field, at the recommended rate of 4kg per acre (10kg per Ha) and timely i.e., two to three weeks before flowering.
7. Unfortunately, Aflasafe is new and unknown among targeted users i.e., farmers, as well as among policymakers, and potential business partners. In addition, causal relationship between using Aflasafe and economic gain is not very clear to end users. The invisibility

¹ MEACA, 2019

of the problem it solves i.e., aflatoxin contamination coupled with weak enforcement of policy and regulatory measures worsens the situation.

8. Widespread proper and timely application of Aflasafe, therefore, will enable production and consumption of aflatoxin safe food and safeguard the health of the population. It will also grow the volume of maize, sorghum, and groundnut traded in the regional export market.
9. The Aflasafe product registration process in Uganda is ongoing with the relevant authority. This will allow for commercial scale production and use of Aflasafe in the country.
10. Key grain commodities, cereals and pulses grown in Uganda and that will benefit from the Aflasafe solution are dry maize, ground nuts and sorghum, whose annual production estimate according to the [Uganda National Bureau of Statistics \(UBOS\)](#) is 3.5 million MT, 176,000MT and 314,553 MT respectively.
11. There is urgent need to ensure that Aflasafe is available, accessible, and affordable to farmers throughout Uganda.
12. The estimated production cost of Aflasafe is about \$0.74 equivalent to about Ugx.2,820 with an indicative retail price estimated between \$1.23/Kg and \$1.25/Kg equivalent to about Ugx.4,662/kg assuming 1kg of sorghum (input) was purchased at Ugx.1,700/kg.

About the Aflasafe commercialization strategy for Uganda

13. The Aflasafe Commercialization strategy was recently developed by EAGC for IITA to provide guidance on how this product will be introduced and scaled up in the market on a sustainable, and commercial basis.
14. In developing the strategy, EAGC engaged key informants and industry stakeholders including grain farmers, cooperatives, traders, processors, service providers, government ministries, departments, and agencies as well as research institutions and NGOs in Uganda to ascertain the scale of the aflatoxin problem in the food systems and its economic, food security and health impacts. The potential and immediate market demand for the Aflasafe, market segments, investor interest in Aflasafe production and/or distribution, commercialization risks and opportunities, business models and existing viable entry/leverage points to commercialize the product were estimated.
15. The Commercialization Strategy highlights several components essential for successful scaling up of Aflasafe in Uganda including local manufacturing, leveraging existing input distribution channels, supported by user training and demonstration to create awareness of the aflatoxin challenge, promote proper use of Aflasafe and the benefits of adoption.
16. The objective of the Aflasafe Commercialization Strategy is to ensure that the Aflasafe business proposition is economically sound, for introducing this new farm-level input and steadily growing the volumes to quantities that generate sufficient revenues to cover the costs, to break even and eventually to profits.
17. The strategy evaluated four models of Aflasafe commercialization. These are:

Model 1: Establishing a greenfield investment in Uganda for local manufacturing and distribution of Aflasafe.

This model requires most capital investment (land, buildings, equipment, etc.) and highest staffing level (operational, support and administrative staff), local sourcing of sorghum and a plant located strategically in Uganda. The investment required to execute this model in Year 1 would be on average UGX 6,510,039,576.

Model 2: Integrating an Aflasafe production line within an existing complementary business operation in Uganda for local manufacturing and distribution of Aflasafe.

Such model is noted to have a lower capital investment than model 1, with fewer additional staff required, including local sourcing of sorghum, and integrated in existing

local agribusiness operation. The investment required to execute this model in Year 1 would be on average UGX 2,011,879,416.

Model 3: Manufacturing AflasafeUG01 in an existing plant in neighboring countries for onward importation & distribution in Uganda. This model would not require new capital investment for factory setup as product would be manufactured using Uganda’s strains and imported from either Tanzania or Kenya and distributed in Uganda. This model can be used in the very short term to speedily avail Aflasafe in Uganda. Capital investment required to execute this model in Year 1 would be on average UGX 66,035,717.

Model 4: Public institution investing in production while private institution(s) investing as a distributor(s) This commercial model assumes capital investment in Aflasafe production by government with production managed by public entity and private sector organization(s) investment in distribution of the product. The manufacturer (Public entity) in consultation with IITA competitively appoints the private sector distributor(s), who subsequently purchases the Aflasafe from the manufacturer, promotes and distributes. Capital investment required to execute this model in Year 1 would *be on average UGX 51,711,075.

At current levels of production, there is potentially 2,398,050 million Ha of land under maize and sorghum. As such, assuming blanket application of Aflasafe only in the area under sorghum and maize production, there is a potential demand of 23,981 MT of Aflasafe annually, highest case scenario, at an application rate of 10kg/ha, other factors remaining constant. Based on the market segment analysis, the immediate demand for Aflasafe will be driven by sorghum owing to presence of processors particularly breweries who are highly sensitive to quality of raw materials (sorghum), particularly, aflatoxin levels and are collectively currently processing approximately 17,000MT of sorghum annually sourced from farmer organizations mainly from Uganda who can be driven to apply Aflasafe.

However, the lowest demand projection considering the immediate demand from breweries in Uganda is illustrated in the table below; -

AFLASAFE ESTIMATED DEMAND PROJECTION (MT)										
	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6	Yr7	Yr8	Yr9	Yr10
Estimated volumes of Aflasafe (MT)	56.7	180.3	236.9	1031.4	1088	1791.5	1791.5	2136	2495	2596.2

Source: EAGC 2023

Workshop and investment forum outcomes

18. Upon receiving the draft strategy, stakeholders:
 - i. **ADVISED on leveraging existing off takers that are keen on quality and food safety to commercialize Aflasafe**, which include grain exporters and processors of food and beverages.
 - ii. **PROPOSED inclusion of Aflasafe in government Farm Input Subsidy Programs** which can help subsidize Aflasafe for farmers and stimulate its uptake. While this shall necessitate an increase in the budget for the subsidy program, the additional cost is expected to be significantly outweighed by expected economic and public health benefits. Successful inclusion in the subsidy program will require engagements with the Ministry of Agriculture, Animal Industries and Fisheries (MAAIF) for its buy-in and to develop a joint plan with partners for phased roll-out of Aflasafe in Uganda.
 - iii. **SUGGESTED Pay-for-Results programs to incentivize commercial marketing of Aflasafe.** Such programs establish a performance-based reward system to encourage private sector players encourage to roll out Aflasafe commercially, an approach which

- was successfully used for hermetic storage technologies in Kenya and Tanzania, would need support and commitment of development partners.
- iv. **CALLED FOR political will to strengthen food safety controls** and to ensure the support of relevant government ministries, departments, and agencies for concerted efforts to improved food safety.
 - v. **POINTED OUT that targeting women as early adopters** could yield significant positive results for Aflasafe commercialization considering that field findings showed women were mostly interested in Aflasafe from a food safety perspective for their households.
 - vi. **APPRECIATED** that in the short run AflasafeUG01 can be imported into Uganda cost effectively.
19. In conclusion, stakeholders endorsed the proposed strategies while several organizations expressed their interest in considering investing in the Aflasafe Commercialization in various stages of the value chain from manufacturing and /or importation to distribution as well as user training.

Next Steps

20. Stakeholders proposed for:
- i. Further exposure of potential investors to the commercial viability of Aflasafe investment.
 - ii. Possibility to start with importing to build volumes, and later start manufacturing in Uganda after economical volumes are achieved.
 - iii. Target price point of Aflasafe was recommended to be below the price of seed. The ideal price is about Ugx.4,661.85/kg assuming 1 kg of sorghum (input) was purchased at Ugx.1,700/kg.
 - iv. Target lower cost of sorghum which accounts for 80% of the cost of Aflasafe, to make Aflasafe more affordable for farmers. One modality for reducing the cost of sorghum is contract farming, a model that can reduce the cost of sorghum to as low as UGX 600 per kg.
 - v. An enabling policy environment to facilitate structured trade including voluntary compliance to standards and food safety regulations by value chain players and adequate enforcement from public sector regulators. This requires resources and expertise for inspection, sampling, and testing of commodities along the value chain.
 - vi. All public procurement for food grains must be accompanied by mandatory aflatoxin sampling, testing and certification to guarantee safety.
 - vii. Introduction of incentives to:
 - o Promote mitigation measures including use of Aflasafe and other available solutions.
 - o Introduce subsidies for Aflasafe through the input subsidy program.
 - o Encourage purchase at premium price for aflatoxin-free grain that has been treated with Aflasafe.

About the workshop organizers



EAGC is a regional, not-for-profit council of firms and organizations in the grain value that is “the leading voice of the grain industry in Africa” whose mandate is “to facilitate efficient structured, inclusive, sustainable and profitable grain trade” through various interventions and programs that include; policy research and advocacy, provision of market information, training and capacity building as well as developing structured grain trading systems. Email: grains@eagc.org



The International Institute of Tropical Agriculture (IITA) is a not-for-profit institution that generates agricultural innovations to meet Africa’s most pressing challenges of hunger, malnutrition, poverty, and natural resource degradation. Working with various partners across sub-Saharan Africa, we improve livelihoods, enhance food and nutrition security, increase employment, and preserve natural resource integrity. IITA is a member of CGIAR, a global agriculture research partnership for a food-secure future. Website: www.iita.org



aBi Development Ltd is a leading social investor, driving Uganda's agriculture and agribusiness sector toward greener and enhanced competitiveness. Through strategic partnerships, aBi Development Ltd promotes innovative, climate-smart solutions. The organization provides matching grants and business development services to various partners, including agribusinesses and NGOs. These efforts aim to build the capacity of farmers and agribusinesses, facilitating adaptation to climate changes, increased productivity, and improved market access. Email: info@abi.co.ug

Annex 1: List of participants

	NAME OF PARTICIPANTS	ORGANIZATION
1.	MAKAKA MOSES	BAIDA
2.	SARAH BAWAYE	WFP
3.	GERENGE SAMUEL	KINYARA SUGAR LIMITED
4.	PATRICE OCUNGYRWOTH	DFCU
5.	CAROLINE WAMONO	aBi DEVELOPMENT
6.	CAROLINE ALIAMO	CABI
7.	CHERUKUT SCOLA	KOPPERT BIOLOGICAL SYSTEMS
8.	GEORGE MAHUKU	IITA
9.	CHRIS MUWANIKA	NARO HOLDINGS
10.	BALIKOWA MOSES	NALG
11.	TWESIGA SOSIMU	FARM UGANDA
12.	OPIO MAURICE	MAAIF
13.	SSAMULA ALEXANDER	MAAIF
14.	OCEN JASPER	NASECO
15.	JANE W KAMAU	IITA
16.	GERALD MASILA	EAGC
17.	SSEGALUMA RONALD	EAGC
18.	DR MARTIN CHEMONGES	MAAIF
19.	BEJA ANDREW	AGROSUPPLY

20.	NEGOMBYE EMMA	STANBIC
21.	MEDARD KAKURU	EPRC
22.	LILLIANE BYARUGABA	EQUITY BANK
23.	PAUL OCHUNA	EAGC
24.	AIJUKA BENJAMIN	EAGC
25.	NANYONDO JOANITAHH	EAGC
26.	GODFREY ASEA	NARO
27.	STEPHEN MBOGO KIRYA	MTIC
28.	TEMESGEN TEAME	SERET GRAINS
29.	BRENDA KWATAMPORA	OWC
30.	MAUREEN NAGGAYI	GRAINPULSE
31.	BBEMBA JOSEPH	SASAKAWA
32.	BRETT RIERSON	GASES
33.	BENARD ISIKO	FTF-ISSA
34.	DANIEL BOMET KWEMOI	NARO
35.	DAVID MUTAZINDWA	KINONI
36.	JULIET AKELLO	IITA
37.	FRANCIS ENARU	MTIC
38.	ANDE OKIROR	SAA
39.	SARAH NALUMANSI	aBi DEVELOPMENT
40.	ALEX BAMBONA	MAAIF
41.	CYNTHIA BIRUNGI	AFEX
42.	OCAKI COSMAS	MAAIF
43.	DIANAH AMONGI	AFEX
44.	LILIAN GITHINJI	AGRA
45.	SSEGUJJA JIMMY	MADUDU
46.	JARED NELVIN OBIERO	EAGC
47.	GEORGE MUTAGUBYA	aBi DEVELOPMENT